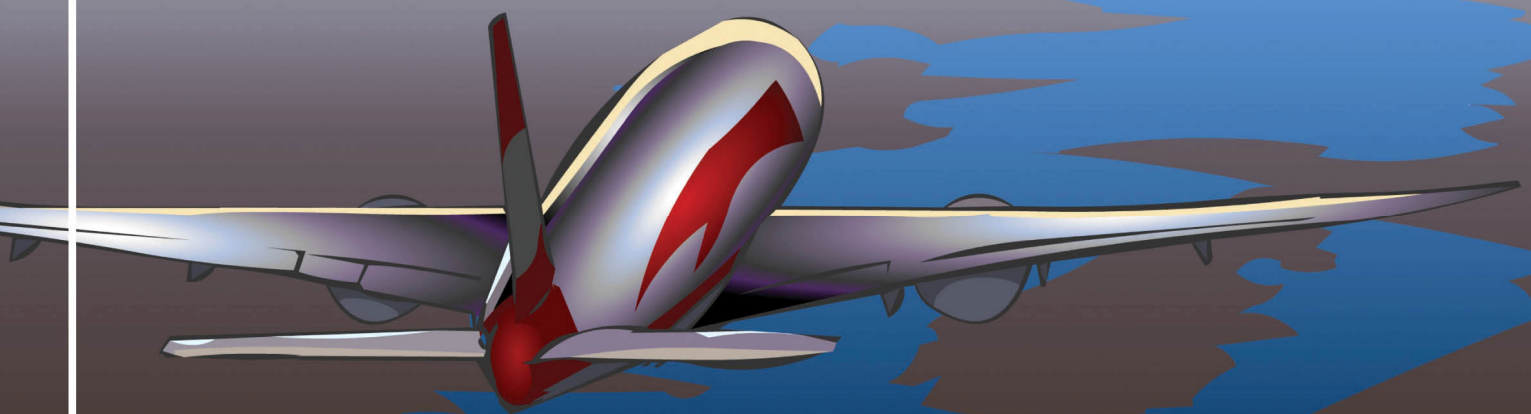# Fiscal Year 2009

## Joint Planning and Development Office
# Work Plan

Next Generation Air Transportation System
Joint Planning and Development Office

# 1.0  Mission

The mission of the Joint Planning and Development Office (JPDO) is to ensure that the Next Generation Air Transportation System is realized by the year 2025.  The JPDO will identify, facilitate, and integrate activities, commitments, and contributions of partner agencies, industry, and other key stakeholders as a way to achieve the goals of NextGen.

The mission of the JPDO is one of change management and will be performed collaboratively and with transparency.
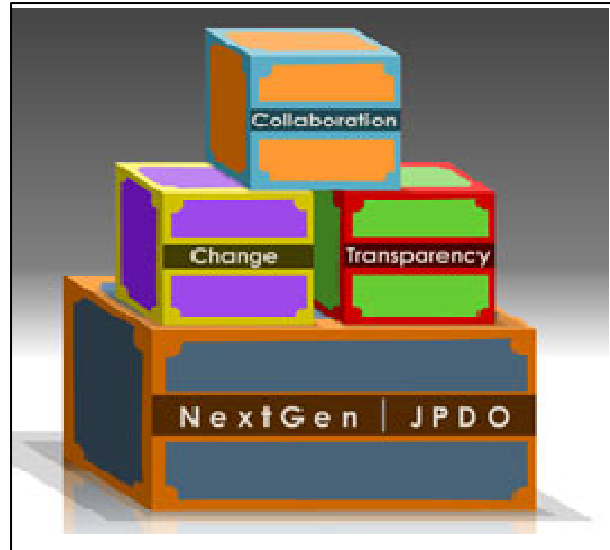


| JPDO Broad Mission Activities |
|---|
| *The JPDO will:* <br><br> • Maintain the NextGen enterprise vision <br><br> • Maintain the NextGen planning products, including the Concept of Operations (ConOps), Enterprise Architecture (EA), Integrated Work Plan (IWP), and Business Case <br><br> • Provide enterprise-level, multi-organization decision support and risk management <br><br> • Facilitate the transfer of technology from research programs to the Federal agencies with operational responsibilities and to the private sector <br><br> • Coordinate aviation and aeronautics research programs to achieve more effective and focused programs that will result in applicable research |

# 2.0  Objectives

In fiscal year (FY) 2009, the JPDO will work to advance its mission and ensure that significant milestones are planned and completed in a collaborative and integrated environment.

## Past Progress

Over the past several years, the JPDO has made substantial progress in its mission to facilitate the transformation of the U.S air transportation system. Most recently, the JPDO baselined major NextGen planning products by leveraging enterprise architecting techniques. These techniques led to the creation of a web-accessible application known as the Joint Planning Environment (JPE) (see Figure 1). The JPE is a tool that allows the JPDO to communicate NextGen planning information in a clear, concise, and consistent way to partner agencies and stakeholders with additional features not possible via paper-based publications.
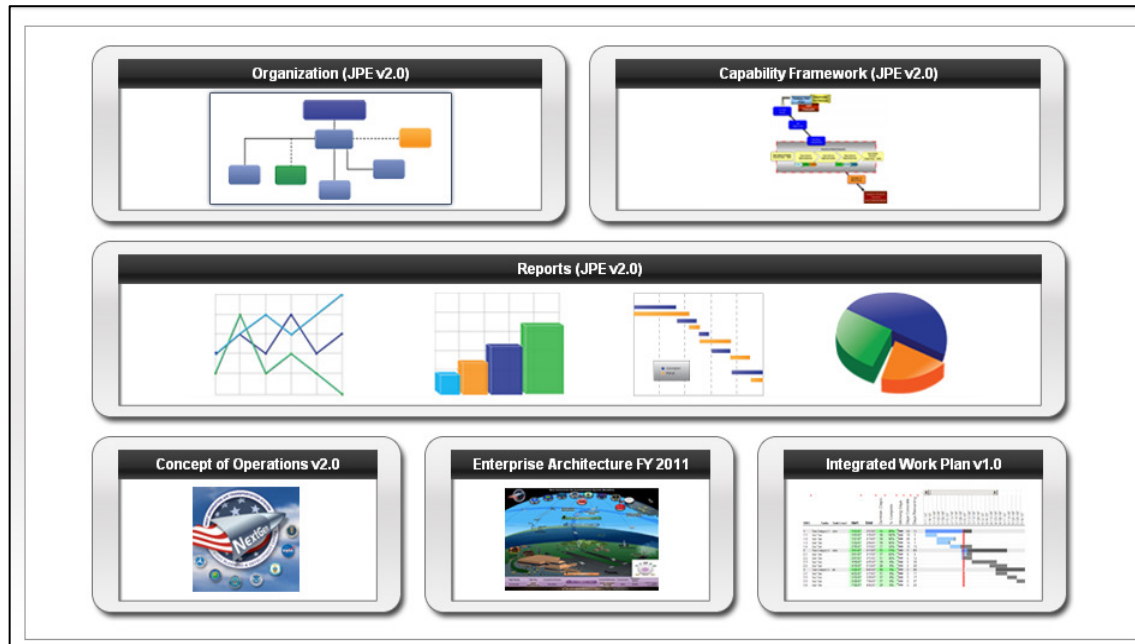


**Figure 1: The Web Interface for the JPE**

In addition, the JPDO has achieved a magnitude of success by integrating a suite of modeling and simulation tools that span much of the NextGen scope. The JPDO has used these tools to perform extensive benefits analyses and to initiate NextGen portfolio analyses, allowing the JPDO to assess options for determining the best business case for each set of investments and solutions. Furthermore, the JPDO's success can be measured in its efforts to provide interagency decision support and by facilitating interagency actions that will enable planning and deployment of key NextGen capabilities.

## Progress in 2009

### *Improve Communications and Outreach to the Aviation Community*

In 2009, the JPDO will primarily focus on furthering organizational progress by improving the understanding of the NextGen vision through more focused, simpler, and detailed graphics and information in an effort to effectively communicate the importance and benefits of the NextGen initiative.

*Transition to the JPE as the Primary Planning Tool*

By transitioning from paper-based publications to Web-based resources, and promoting the JPE as its primary planning tool, the JPDO is committed to communicating and distributing consistent and accurate information to stakeholders and the general public.  In FY09, the JPDO will improve functional capability and the user interface of the JPE as part of this transition.

*Develop a Joint Planning Framework to Improve the JPE Data Structure*

Within the JPE, the JPDO is focused on developing an enhanced Joint Planning Framework (see Figure 2) that improves the data structure of the NextGen planning documents.  This framework is the foundation for the data structure of the JPE.  The purpose of the framework is to identify the capabilities, operational activities, conditions, standards, and supporting enablers (solutions) needed to achieve NextGen goals and objectives consistent with national strategies, concepts, and integrated architectures across partner and stakeholder domains.

Transitioning from a functional framework to a capability framework will allow for improvements in data integration and management.  In addition, it will improve the ability to "federate" multi-agency architectural and planning information.  The JPDO will continue to work with their partner agencies to establish alignment, linkages, and relationships among agency Enterprise Architectures.
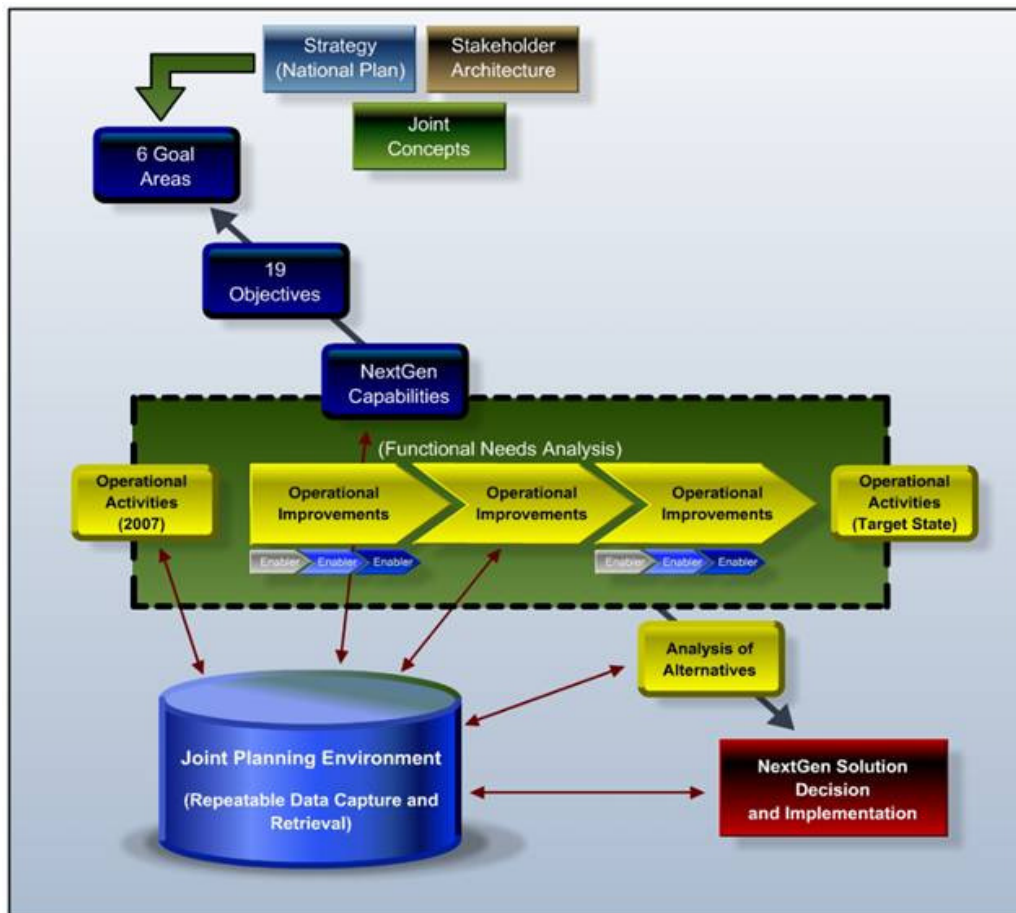


**Figure 2:  The Joint Planning Framework**

**Joint Planning and Development Office**

### *Expand and Improve NextGen Planning Elements*

As part of the JPDO's commitment to expand and improve the content of the NextGen planning elements, the JPDO will continue to capture the content generated by the Working Groups, agencies, and other organizations, as appropriate. Two specific examples are space commercialization and avionics. The JPDO has worked with the Federal Aviation Administration's (FAA's) Office of Space Commercialization to expand the definition of concepts for space access and commercialization.

Moreover, the JPDO Aircraft Working Group delivered and vetted the NextGen Avionics Roadmap in FY08. As the document evolves, future efforts for FY09 will include the integration and alignment of the Roadmap into JPDO foundational documents and similar agency planning documents, to allow for greater clarity on aircraft- and avionics-specific changes.

### *Update and Improve the Gap Analysis*

In FY09, the primary focus of the gap analysis will be to review the results from FY08 to determine the status of the reported gaps, and to identify any new agency or cross-agency gaps or opportunities for collaboration. This analysis will compare agency plans with the IWP in an effort to identify fundamental gaps in planning NextGen.

A gap is defined as a NextGen activity that is not occurring in a sufficient manner to achieve the overall goals of the new system. In FY08, the JPDO conducted a gap analysis to identify gaps in cross-agency plans. It also conducted a valuation process that was a combination of expert judgment and quantitative information obtained from previously completed simulations and reports. The gap valuation process was based on the following:

- Gaps that, if left unfilled, would lead to penalties to aviation stakeholders (benefits assessment)
- Gaps that were hardest to achieve (risk assessment)
- Gaps that required cross-agency activities

Other criteria involved investment level, key decisions, and affected stakeholders.

### *Develop a Formal Simulation-Based Decision Support Capability*

To help facilitate JPDO Board and Senior Policy Committee (SPC) multi-agency decision-making, the JPDO will develop a formal, simulation-based decision support capability. Some specific progress and developments that support this objective include:

- On-going development of a harmonized set of metrics and targets

- Improved quality and quantity of performance information in the JPE

- Development of an initial investment prioritization

- Development of an initial, real-time, and multi-variable trade-off analysis capability

### *Complete an Initial NextGen Business Case*

As part of the FY09 portfolio efforts, the JPDO will update the Long-Term Interagency Business Case for NextGen. This process will enable the JPDO's Interagency Portfolio and System Analysis (IPSA) Division to validate the economic viability of the various NextGen system architectures, concepts, and requirements. To date, significant progress has been made in aligning costs to benefits, and establishing new cost proxy programs for non-baselined enablers.

In FY09, the IPSA Division will continue to formalize the cost risk process, including the integration of policy and strategic decision challenges, while continuing to identify, harmonize, and integrate benefits, costs, and risks with partner agencies. As interagency coordination continues, the JPDO will provide an initial Long-Term Interagency Business Case for NextGen to the Office of Management and Budget by September 2009.

### *Assess, Assist, Monitor, and Report on the Progress of Policy Initiatives*

A key part of NextGen success will be its ability to identify, track, and help resolve major policy issues (PIs) required to enable NextGen operational improvements. In FY08, the JPDO developed a structured Assist, Assess, Monitor, and Report process for tracking progress on NextGen policy issues identified in the IWP. The process includes assessing maturity (gauged according to PI development stages), quality (how well solutions serve involved stakeholders, decision-makers, and dependent NextGen activities), and timing (assessment of scheduled risk related to dependencies and assigned decision dates).

In FY09, the JPDO will initiate the PI Assist, Assess, Monitor, and Report process, and will work in collaboration with partner agencies, offering assistance to help mature PIs.

*Manage and Support the Joint Integration Council, JPDO Board, and the Senior Policy Committee (SPC)*

As the JPDO continues to coordinate and facilitate interagency planning, development, and the implementation of NextGen, multi-agency key initiatives, such as Interagency Focus Areas, Research Transition Teams, and SPC interagency initiatives, remain high priorities.  As NextGen progresses, the JPDO will track these key interagency initiatives with the JPDO Board and SPC members, and identify new ones.

## 3.0  Technical Priorities

Over the past few years, the JPDO has developed a set of technical priorities based on the analysis and input of subject matter experts.  Some of these priorities have matured into JPDO Board and SPC level multi-agency actions.  These priorities represent the technical focus of JPDO work for FY09 and beyond (i.e., many are multi-year priorities).

In an effort to advance the goals of the NextGen initiative, the JPDO will continue work on initiatives deemed as priorities by the SPC.  These interagency initiatives are outlined in Table 1.

| SPC Interagency Initiative | Goal |
|---|---|
| • Develop a Multi-Agency Net-Enabled Weather Plan | − Develop the concepts and plans necessary to achieve an early implementation of net-centric, single authoritative source of weather information and the decision support tools to integrate the information into aviation operations |
| • Transition to National Aviation Safety Management | − Develop the governance, documentation, and tools required to coordinate consistent safety management, data sharing, and analysis across government and private sector organizations |
| • Develop a Multi-Agency Net-Centric Operations Plan | − Develop the governance, documentation, and tools required to transition to a multi-agency, net-centric information sharing environment |
| • Transition to an National Integrated Surveillance Capability | − Develop the governance, concept of operations, and enterprise architecture documentation required to manage the transition to a National integrated surveillance system |

**Table 1: SPC Initiatives and Activities**

*Interagency Focus Areas - JPDO Board*

In 2008, the JPDO identified several high priority interagency focus areas that needed to be addressed. These areas were based on the following:

1. The focus areas and issues involved were considered essential to the future and timely development of NextGen.
2. Based on analysis of the current planning documents, as well as departmental and agency budgets, it was determined that there was a gap in how the issues were established.
3. The focus areas presented areas of concern that needed to be addressed on an interagency basis.

In 2009, the JPDO's role is to help the government partners identify the focus areas and then, if needed, help facilitate the very early stages of this work. These areas and their milestones are outlined in the Table 2.

| High Priority Interagency Focus Areas | Goal |
|---|---|
| • Develop a Multi-Agency, Integrated Approach to Security Risk Management | – Develop a comprehensive, integrated aviation security risk management concept, including metrics to reflect risk and benefit categories associated with aviation security |
| • Define the Environmental Requirements for NextGen | – Develop a detailed definition of the environmental goals, metrics, and targets for NextGen, and align strategies and investments to achieve the goals |
| • Develop the Capability to Perform Complex Systems Verification and Validation (V&V) for NextGen | – Develop a research plan with the goal of meeting NextGen V&V needs (long-term transformation of a human-centered, complex system) |
| • Increase Clarity of the Air/Ground Functional Allocation | – Develop a decision roadmap for the evolution of the roles of the flight deck, air traffic controller, and automation, including associated operational changes |

**Table 2: High Priority Interagency Focus Areas**

## 4.0   Other Identified Priorities

The chart below identifies other JPDO priorities for FY09.  These priorities are collaborative efforts which include input from Divisions, Working Groups, JPDO government partners, and industry.  Many of these efforts are ongoing and may extend past the FY09 timeframe.

| Product | Goal |
|---|---|
| • Develop a far-term definition of Communications Navigation Surveillance (CNS)/Avionics | − Develop far-term target concepts, operational improvements/enablers, and roadmaps for NextGen CNS infrastructure and avionics (as well as expand user classes) |
| • Increased definition of Gate-to-Gate (G2G) Trajectory-Based Operations (TBO) <br><br> *Captures far-term perspective on Closely-Spaced Parallel Operations and Integrated Surface/Arrival/Departure Interagency Focus Areas* | − Develop the G2G TBO concept to an adequate level where it can be modeled and guide related concepts and enabling functions/systems (e.g., avionics).  In addition, G2G TBO should ensure consistency between near-term agency actions and the far-term target. |
| • Define Airline Operation Center (AOC)/Flight Operations Center (FOC) Integration with NextGen | − Develop detailed concept for how the Airline Operations Centers (AOC)/ Flight Operations Centers (FOC) will interoperate with NextGen in the far term or target state |
| • Global Harmonization Efforts | − Develop next steps on coordination with the Single European Sky ATM Research (SESAR) Joint Undertaking (JU) <br><br> − Expand harmonization strategy to multi-agency framework |

**Table 3:  FY09 Identified Priorities**

## 5.0   Schedule

### FY09 JPDO Integrated Management Road Map

| | Q1 | | | Q2 | | | Q3 | | | Q4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |

**Timeline**
- "All Hands" Meeting
- SPC Meeting — SPC
- JIC   IMC
- FY09 Planning Workshop
- SPC Meeting — SPC
- Telecon
- JIC
- IMC
- OMB
- "All Hands" Meeting
- Board Meeting — B
- "All Hands" Meeting
- IMC
- Board Meeting — B
- Board Meeting — B
- OMB
- SPC Meeting — SPC
- IMC
- Board Meeting — B
- Board Meeting — B
- OMB

**Director / Deputy**
- FY09 WG Work Plan Status Review
- FY09 WG Work Plan Status Review

**Strategic Interagency Initiatives (SII)**
- Societal Business Case Research (joint with IPSA)
- Environmental Targets Assessment DELAYED TO FY10
- Policy Gap Analysis
- Airport Capacity Modeling & Analysis DELAYED TO FY10
- Flight Prioritization Report DELAYED TO FY10
- Research Policy Impacts

**Partnership Development**
- IWP / JPE JPDO Community Demo
- Delivery of "NextGen Display"
- NextGen Executive Overview Document v1.0
- Progress Report Article
- Progress Report Article

**Interagency Architecture and Engineering (IAE)**
- Develop, vet, and implement JPF with IWP V1.0 baseline
- Institutionalize Configuration Management Process
- Achieve Joint Planning Framework agreement for communicating NextGen among Partner agencies
- IWP Loading Analysis
- Create NASA Segment to credit research risk reduction
- Complete Refined Gap Analysis
- Draft Updated IWP
- Draft Updated ConOps
- Update the JPE (ConOps, EA, IWP)
- Prioritize and implement JPE User Interface and functional improvements [all agencies will be involved in this process].
- Integrated Communication, Navigation, Surveillance (ICNS) task

**Interagency Portfolio and System Analysis (IPSA)**
- Budget Recommendations, Priorities and Sensitivity Analysis
- Generate FY11 budget guidance
- Develop, implement NextGen metrics (to support the Business Case)
- Develop an overall prioritization of OI's joint with IAE
- IPSA to provide valuation and prioritization of Gap Analysis
- Decision Framework
- Vetting E-53
- Complete E-53
- Vetting Business Case with agencies (including metrics)
- Complete Business Case

**Net-Centric Operations (NCO)**
- Net-Centric Task Force Team fully formed
- Net-Centric Roll-Out Plan
- NextGen Surveillance ConOps Update Draft (links with Update to JPE)
- NCO ConOps DELAYED TO FY10

**LEGEND:**  SPC - SPC Meeting   B - Board Meeting   Completion   Completed   Support Role

**Joint Planning and Development Office**

## Document Revision History

| VERSION | DATE | DESCRIPTION |
|---|---|---|
| Draft Version 0.1 | March 5, 2009 | Draft submitted to JPDO Division Directors |
| Version 1.0 | March 5, 2009 | Published on JPDO Web site |
| Version 1.1 | May 5, 2009 | The following revisions were made to the FY09 JPDO Integrated Management Road Map. **Timeline**: The February and March "Joint Integration Council (JIC)" Meetings have been removed, and tentative "Senior Policy Committee (SPC)" Meetings in January and March were postponed due to lack of members; **Business Management Division:** Activities were deemed as administrative and have been removed to improve Road Map readability; **Partnership Development Division:** The "Congressional Report" was removed as the FAA is responsible for completing this document, and "Progress Report Articles" have been added (the JPDO will publish these articles in May); **Interagency Architecture and Engineering Division:** "Create NASA Segment to Credit Research Risk Reduction" milestone was modified after negotiations between JPDO and NASA; **Interagency Portfolio and System Analysis Division:** "Develop, Implement NextGen Metrics" was modified and moved to May 2009; "Vetting Business Case with Agencies" was modified to include metrics; **Net-Centric Operations Division:** "Net-Centric Roll-Out Plan" milestone was modified to show a completion date of May 2009 |
| Version 1.2 | June 24, 2009 | The following revisions were made to the FY09 JPDO Integrated Road Map.  **Timeline:** "Office of Management and Budget (OMB)" Meeting milestone in March did not occur and was removed, tentative SPC Meeting milestone in July was removed due to transition of new members, and JPDO Board Meeting milestone in August was moved to the end of July; **Strategic Interagency Initiatives Division:** "Policy Gap Analysis" milestone was modified to reflect completion at the end of Q4, and to allow time for  coordination with partner departments and agencies; "Environmental Targets Assessment," "Airport Capacity Modeling and Analysis," and "Flight Prioritization Report" milestones were modified to reflect completion in FY10; **Partnership Development Division:** "Progress Report Article" milestones were added to each month through the |

| | | |
|---|---|---|
| | | end of FY09; **Interagency Architecture and Engineering Division:** "Draft Updated ConOps" was modified to reflect completion at the end of August, "Complete Refined Gap Analysis" was modified to reflect a completion of mid-July, "Draft Updated IWP" milestone was moved to July, and "Prioritize and Implement JPE User Interface and Functional Improvements" was moved to the end of September to align with "Update the JPE" milestone; **Interagency Portfolio and System Analysis Division (IPSA):** "Vetting E-300" and "Complete E-300" milestones changed to "Vetting E-53" and "Complete E-53", "IPSA to Provide Valuation and Prioritization of Gap Analysis" milestone was modified to show completion at the end of June; **Net-Centric Operations (NCO) Division:** "NextGen Surveillance ConOps Update Draft" milestone was modified to a support role as it links to "Update the JPE" under the Interagency Architecture and Engineering Division, "NCO ConOps" milestone was modified to show completion of July 2009 |
| Version 1.3 | July 20, 2009 | The following revisions were made to the FY09 JPDO Integrated Road Map: **Timeline:** "Joint Integration Council (JIC)" Meeting was postponed, and removed from June; **Partnership Development Division:** "Progress Report Article" for June was changed to green, to indicate completion, "Develop a NextGen Executive Overview Document: Version 1.0" milestone was changed to green, to indicate completion; **Interagency Architecture and Engineering (IAE) Division:** "Complete Refined Gap Analysis" was changed to green, to indicate completion, "Draft Updated Integrated Work Plan (IWP)" was changed to green, to indicate completion, "Develop an overall prioritization of Operational Improvements (OIs) joint with IPSA" was changed to green, to indicate completion; **Interagency Portfolio and System Analysis (IPSA) Division:** "Develop an overall prioritization of OI's joint with IAE" was changed to green, to indicate completion, "IPSA to provide valuation and prioritization of Gap Analysis" was changed to green, to indicate completion, "Decision Framework" was changed to green, to indicate completion |
| Version 1.4 | August 24, 2009 | The following revisions were made to the FY09 JPDO Integrated Road Map: **Timeline:** "Joint Integration Council (JIC)" Meeting did not occur for August, and star was removed, JPDO "Board Meeting" milestone was added to August; **Partnership Development Division:** July "Progress Report Article" milestone was removed since it was not completed, "Progress Report Articles" are |

| | | |
|---|---|---|
| | | generated on an unscheduled basis, stars will be added as articles are completed, Completed "Progress Report Article" milestones were moved to the end of each month; **Interagency Architecture and Engineering Division:** "Develop an Overall Prioritization of OI's joint with IPSA" star was removed, due to reevaluation of the scope; **Net-Centric Operations Division:** Modified "NCO ConOps" to reflect completion in FY10 |
| Version 1.5 | September 24, 2009 | The following revisions were made to the FY09 JPDO Integrated Road Map: **Timeline:** "The 'All Hands' Meeting" was removed from the Fourth Quarter (September) and rescheduled for October 16, 2009, which is reflected in the FY10 Star Chart; **JPDO Director and Deputy Director:** "FY09 WG Work Plan Status Review" was removed from Fourth Quarter (September), the new date is October 14, 2009, which is reflected in the FY10 Work Plan ; **Partnership Development Division:** "Progress Report Article" stars were removed from August and September; **Interagency Architecture and Engineering Division:** "Draft Updated ConOps" was changed to green to indicate completion; **Interagency Portfolio and System Analysis:** "Vetting E-53" and "Vetting Business Case with agencies (including metrics)" were changed to green to indicate completion |
| Version 1.6 | October 23, 2009 | The following revisions were made to the FY09 JPDO Integrated Road Map: **Strategic Interagency Initiatives:** "Policy Gap Analysis" and "Research Policy Impacts" were changed to green to indicate completion; **Interagency Architecture and Engineering Division:** "Update the JPE (ConOps, EA, IWP)" was changed to green to indicate completion, "Prioritize and implement JPE User interface and functional improvements (all agencies will be involved in this process)" was changed to green to indicate completion, and "Integrated Communication, Navigation, Surveillance (ICNS) task" was changed to green to indicate completion; **Interagency Portfolio and System Analysis:** "Complete E-53" and "Complete Business Case" were changed to green to indicate completion |